EASY

User Manual

xLogic Ethernet Module

ETHERNET?

No problem, the xLogic Super-Relay is Ethernet friendly. With the use of the ELC12-E module Ethernet connectivity can be added instantly.

Micro Automation

Version: 2.2

xLogic Micro PLC

Note: This manual now is also applied to ELC-E-Ethernet module

ELC-E-Ethernet-DC/AC

ELC12-E-Ethernet-DC/AC

xLogic SuperRelay Ethernet module (ELC12-E-Ethernet&ELC-E-Ethernet)

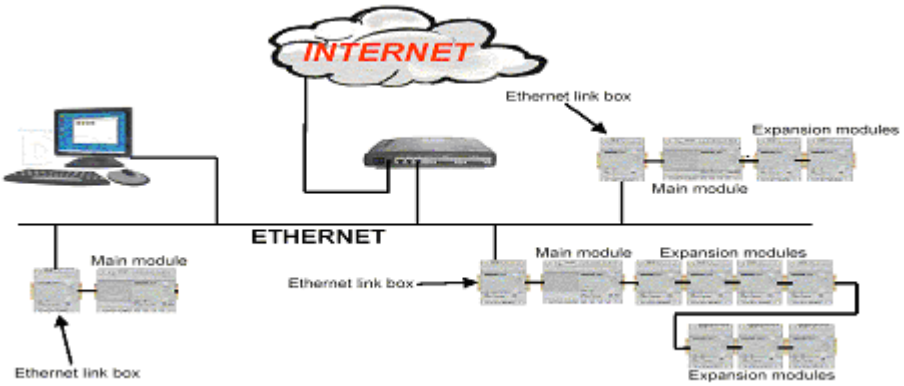
Brief introduction

ELC12-E-Ethernet&ELC-E-Ethernet

It is called Ethernet module, used to connect ELC-12 series main modules in different places to enormous Ethernet to buildup a huge monitoring and control system .The ELC12-E-Ethernet module can be divided into ELC12-E-Ethernet-AC type and ELC12-E-Ethernet-DC type

Ethernet network

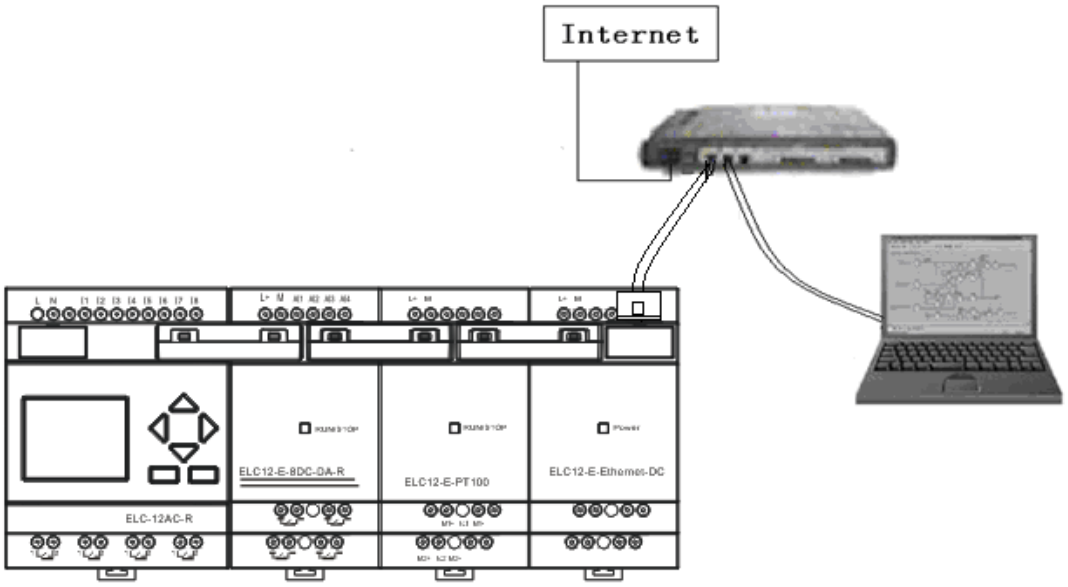
If the application requires a system where more than one main module is needed and these main modules have to communicate, each main module will be connected over an Ethernet Module box to the Ethernet. The project down- and upload to and from the main modules and the communication between the main modules happens over the Ethernet network. Furthermore the visualization of the whole system is possible and easy to realize by a personal computer.



How to connect hardware before Ethernet module running ?

1. Set ELC12-E-Ethernet module IP address.(refer to software first part)
2. Link the ELC12-E-Ethernet to the xLogic SuperRelay system (which must contain a ELC-12 CPU module)
3. Link the ELC12-E-Ethernet to internet by net wire, then use PC or other monitor device for monitoring or download & upload of users' program purpose.
4. Power on all devices in accordance with their voltage class.
5. Set communication parameter by xLogicsoft.(as configure shows in page 10)

Sketch map:



Note: If there are extension modules in the application , the plus sequence of ethernet module must be the last one ,as above figure showing.

Software part:

Device **IP** factory setting

The default IP adress of Ethernet module is：192.168.0.178

Network segment check of PC and Ethernet module's

Users need ensure that PC has Ethernet cards,and that the network settings of PC and Ethernet module's must keep in the same network segment before establishing communication between PC and Ethernet module.

The Ethernet module has a factory setting IP（192.168.0.178） and network mask（255.255.255.0）. Users can process as shown in Figure 4.3 to check whether the Ethernet module and PC in the same network segment. If in the same network segment, then congratulations to you, and you do not have to read the following network setting contents. If it is different, then the following settings is very important to you.

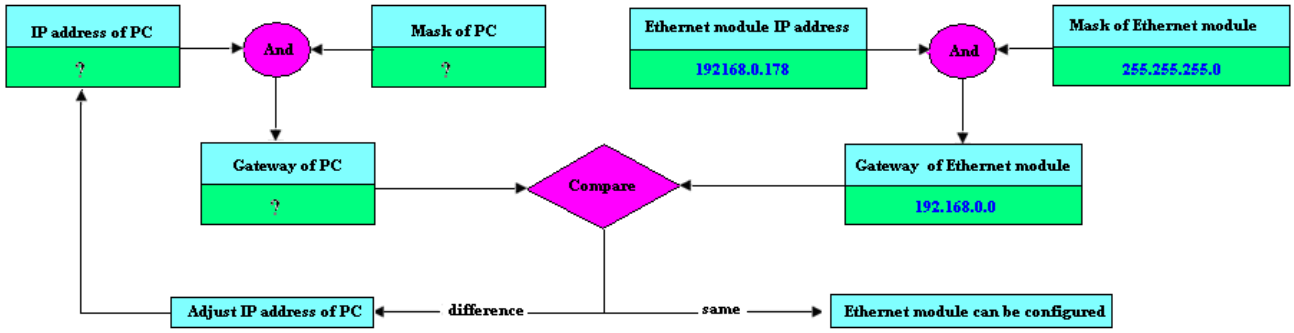


Figure 4.3

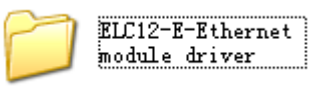
Above contents is used to tell you how to make the user's PC with ELC12-E-Ethernet module in the same network segment.

First part: set or modify IP address, port number with "ZnetCom2" software.

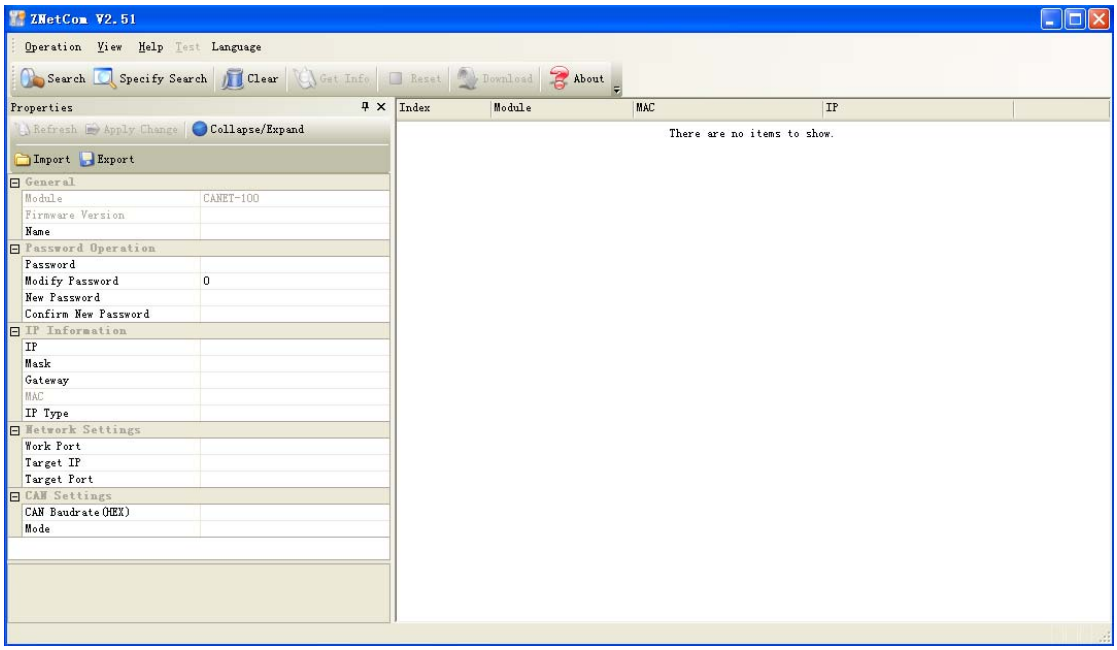
How to configure Ethernet module(ELC12-E-ETHERNET) IP address?

Start Ethernet module IP address configuration software.

Step one: Double click the file "ELC12-E-Ethernet module driver" in CD and then the following contents will pop out:

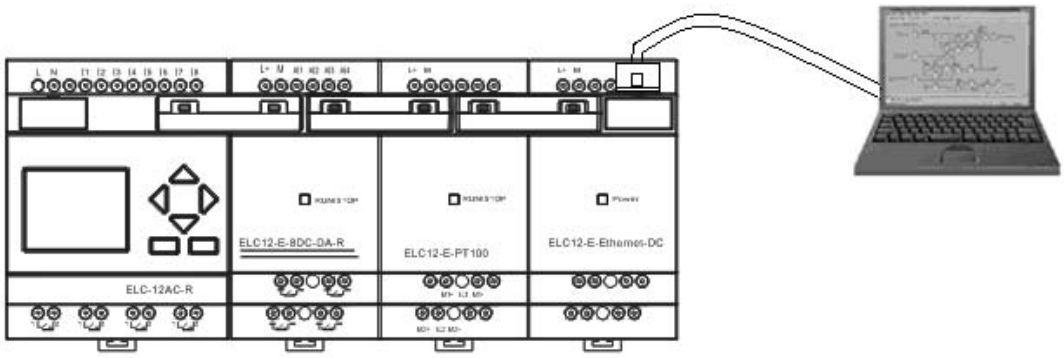


Step two: Select “ZnetCom2.exe” file, and start it with double-click the left key of your mouse.



In order to enable your Ethernet module to link to Ethernet, you are required to connect your Ethernet module (ELC12-E-Ethernet-DC/AC) to your computer by net router. You are allowed to connect the Ethernet module to Ethernet directly by common net cable. Hereunder let’s take computer as an example:

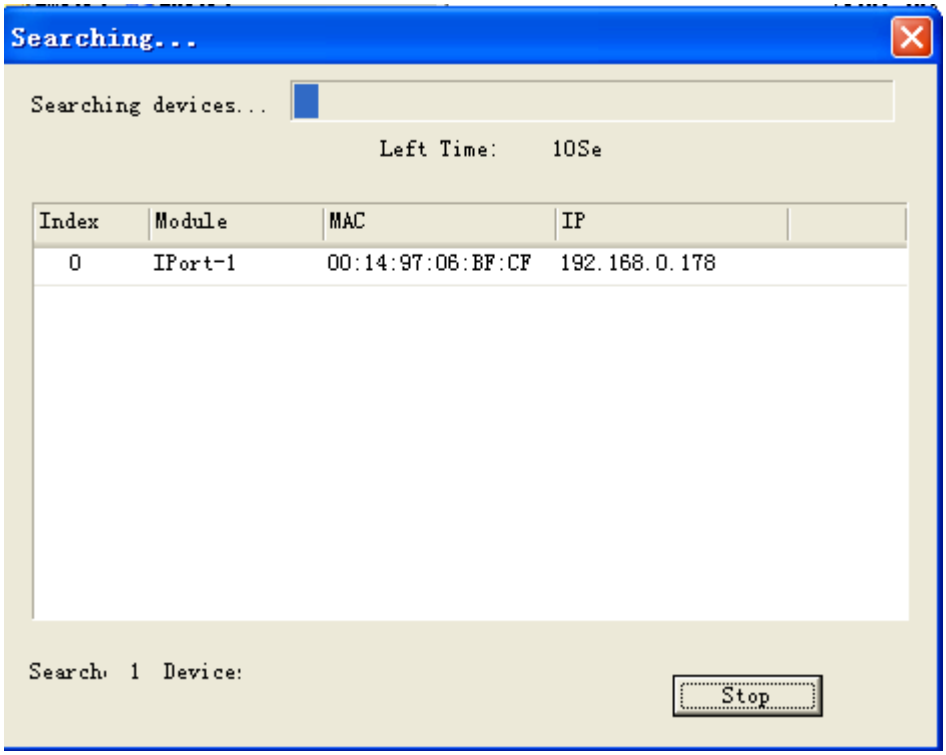
Connect diagram:



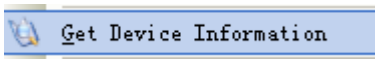
You are required to set as following way, otherwise the Ethernet module may fail to work , please take some time to study the below instruction carefully :

Power on ELC12-E-Ethernet-AC/DC module and click

to search Ethernet. At the same time the searching Windows will pop out as the follow figure . In the search window, we can see the search module, and the corresponding MAC address and IP Address. Search window will close automatically after 10 seconds, the user can also click “stop” button to close it.

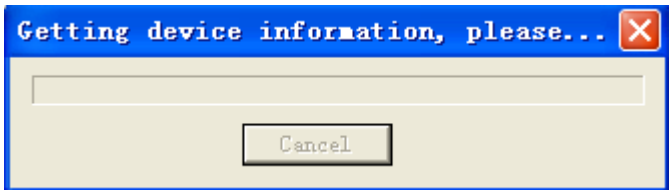


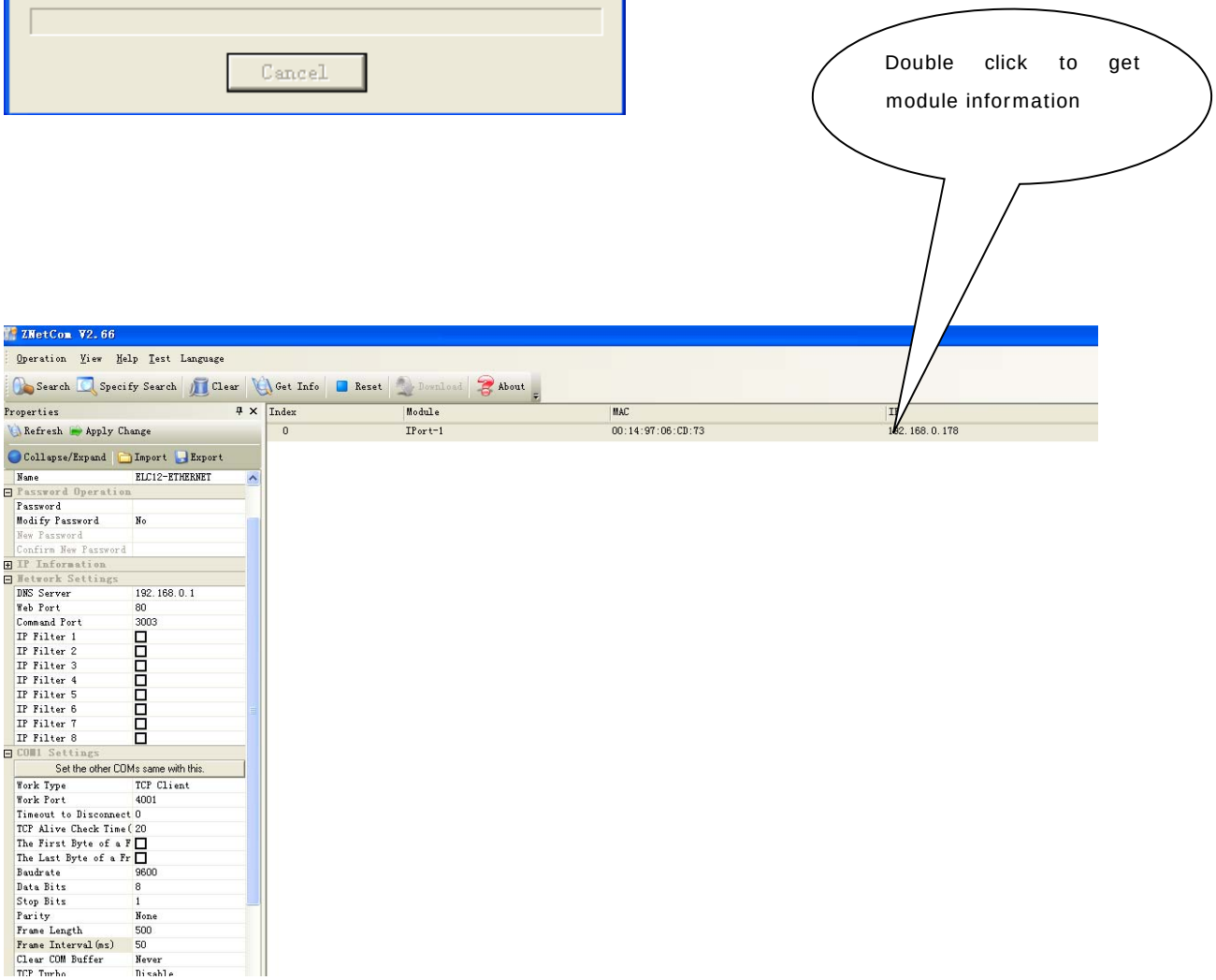
Double-click the device in the list of equipment; or select equipment items, click the toolbar



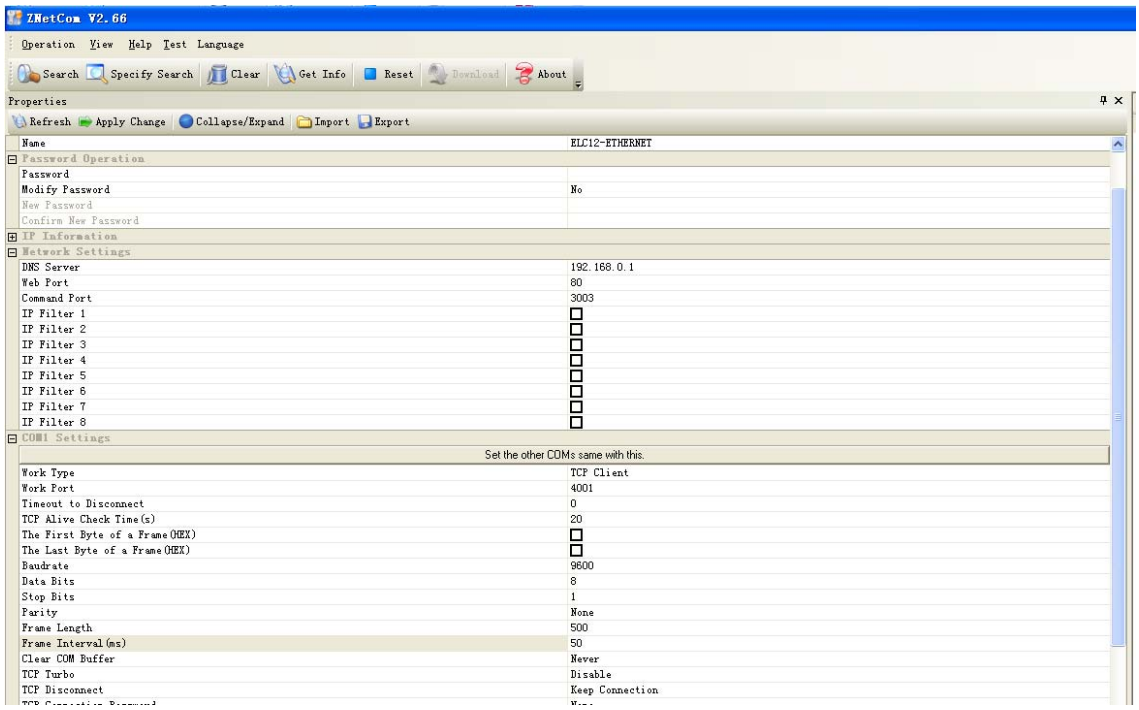
button or button

in attributes Bar, as shown in the following Figure "Getting device information" dialog box.

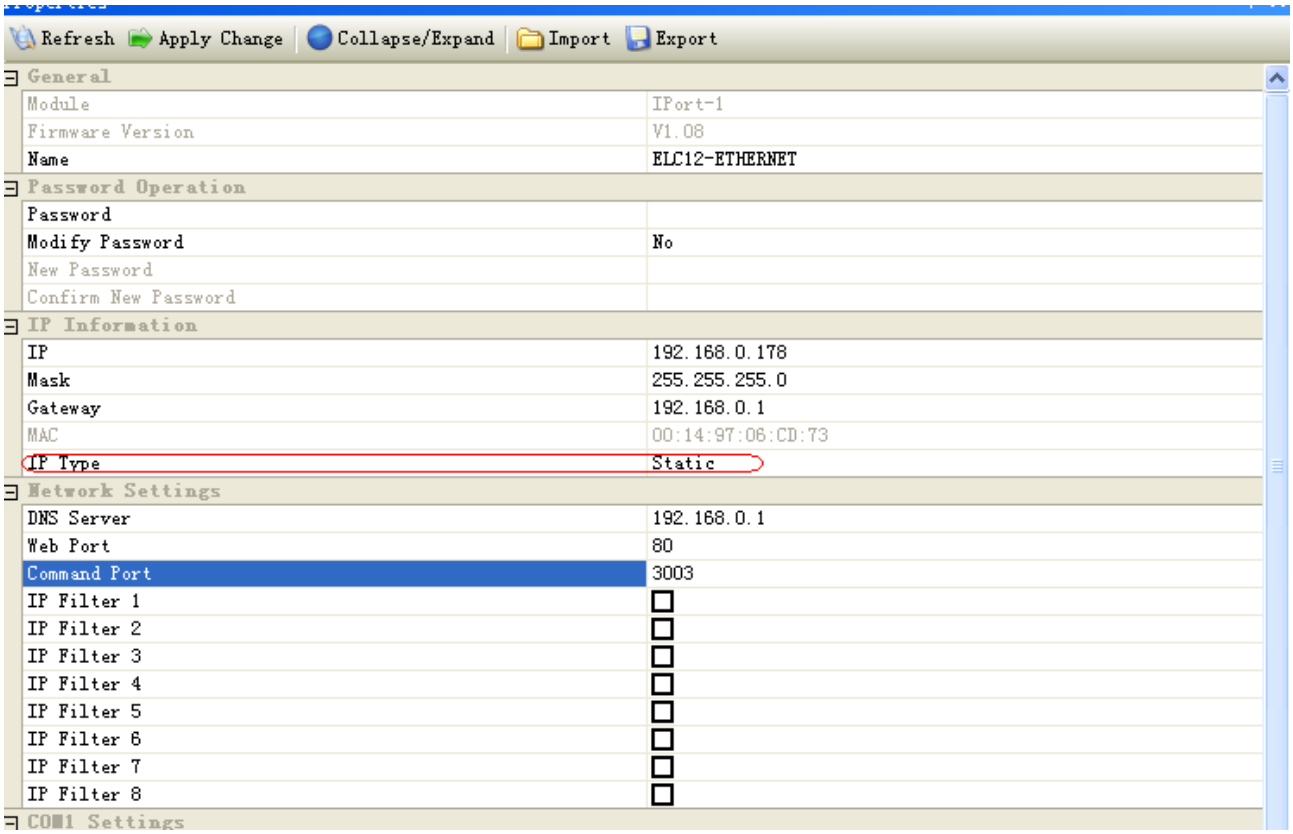




Then the information of Ethernet module would show as follow.



Note: All the contents in the red frame region cannot be adjusted. That's to say, you must select the items as follows in red circle.

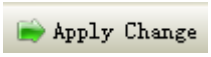


COM1 Settings	Set the other COMs same with this.
Work Type	TCP Client
Work Port	4001
Timeout to Disconnect	0
TCP Alive Check Time(s)	20
The First Byte of a Frame(HEX)	
The Last Byte of a Frame(HEX)	
Baudrate	9600
Data Bits	8
Stop Bits	1
Parity	None
Frame Length	500
Frame Interval(ms)	50
Clear COM Buffer	Never
TCP Turbo	Disable
TCP Disconnect	Keep Connection
TCP Connection Password	None
TCP Connection Info	None
TCP Connection Condition	None
TCP Connection Count	2
Function IO	TCP Link Status
Target Port 1	5000
Target IP 1	192.168.0.214
Target Port 2	5001
Target IP 2	192.168.0.246
Target Port 3	6003
Target IP 3	0.0.0.0
Target Port 4	6004
Target IP 4	0.0.0.0

Note: Baudrate can be set “4800” ,”9600”,”19200” and the corresponding communication port must be set the same baudrate ,just the COM3 in the ELC-12 CPU.

The target port and target IP can be set up to 4 groups.

Note: Just as above figure shows, parameters in “Target IP1,Target IP2, Target IP3, Target IP4” must be adjusted to be exactly same as those in your PCs which will use to communicate with ELC12-E-Ethernet module. However “Target Port” number in above configure shows can be adjusted as you like and in xLogicsoft those may be used.

Confirm the changed information by clicking 

button.

Note: Password protection is available if user wish to do.

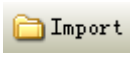
Module	ZNE-100TL
Firmware Version	V1.13
Name	ELC-Ethernet
Password Operation	
Password	*****
Modify Password	No
New Password	
Confirm New Password	
IP Information	

Save your settings

The settings about ELC12-E-Ethernet can be saved in XML format by clicking

button.

Import exited settings

Existing configuration of ELC12-E-Ethernet can be imported called by clicking 

button.

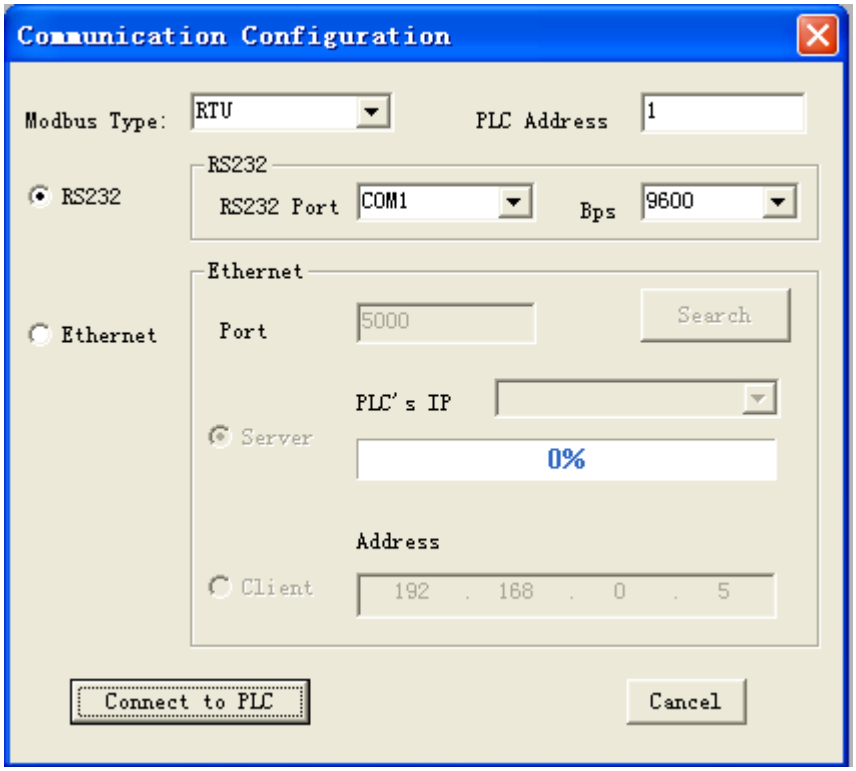
Second part: Communication and monitor with xLogicSoft.

1.Link ELC12-E-Ethernet to ELC-12 CPU module

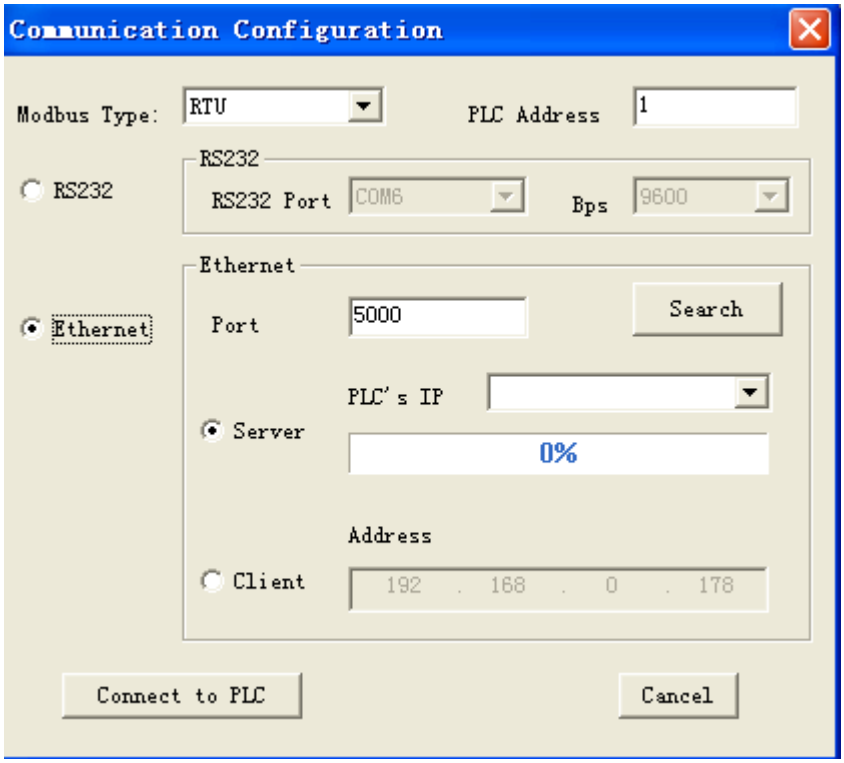
2. Here are two options to open “COM PORT”:

A. click symbol B. select menu Tools->Configuration

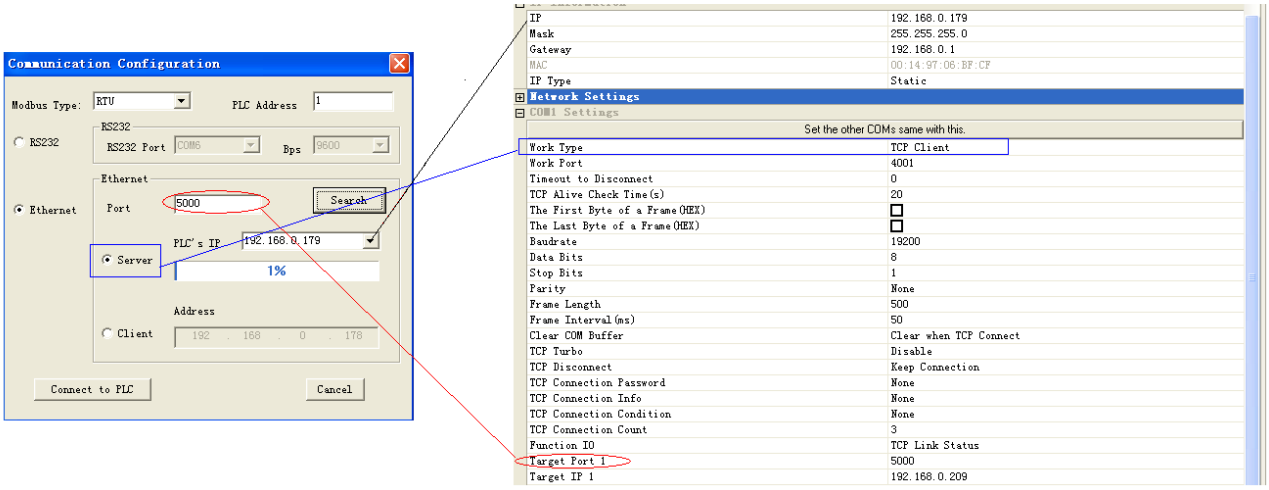
Option 1: ELC12-E-Ethernet unit work under TCP client mode, xLogicsoft software as server .



3.Select “Ethernet” option



4. To search “PLC’s IP” by clicking “Search” button



Port number and PLC’s IP pre-configure in Znetcom soft as below figure.

5. Click "Connect to PLC" button, and then the Ethernet module and PC will be linked.

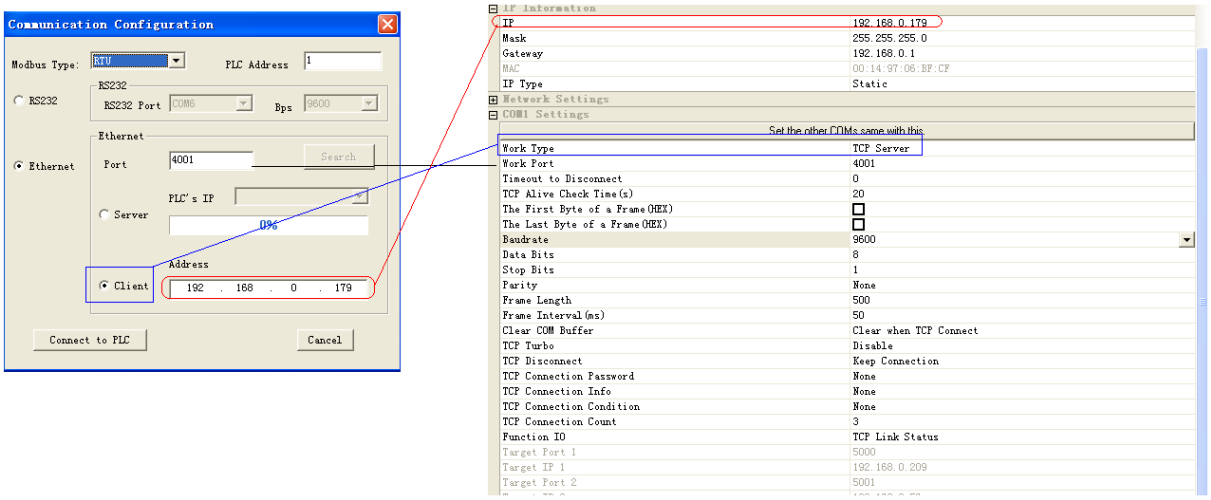
After the Ethernet module and PC being linked, many features can come true, e.g. downloading user program into xLogic CPU module ,uploading program into PC and online monitor (monitor real time status of xLogic IO)can be done, herewith Ethernet module just plays a role of ELC-RS232/USB cable.

A . Upload program: click

B. Download program: click

C. Monitor program run status: click

Option 2: ELC12-E-Ethernet unit work under TCP serve mode, xLogicsoft software as Client.



In addition, if more than one CPU module would be required in certain application/project system, then communication between those CPU modules has to be realized via Ethernet module, in this application, please note that each CPU module must require one Ethernet module to be linked to. In other words, one Ethernet module can ONLY be used to link with ONE CPU module.

Note: Modbus RTU is just the communication protocol between Ethernet module and other device. Such communication protocol would be available if required.

How to monitor the register and change the register value via Ethernet module with the standard MODBUS TCP protocol ?

Note:

1.The standard/economic ELC-18 CPUs only can support the MODBUS RTU, so the device which support the MODBUS TCP cannot communicate with the standard/economic ELC-18 CPUs.

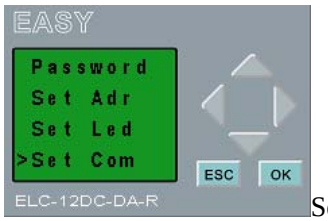
2. Standard ELC-12 CPUs, upgraded ELC-18 CPUs and the ELC-22/26 CPUs now are all supporting the MODBUS TCP protocol, but the default is still MODBUS RTU for the Ethernet module. User need change to the MODBUS TCP via panel key if required.

Next is showing how to change the communication protocol to MODBUS TCP via panel key:

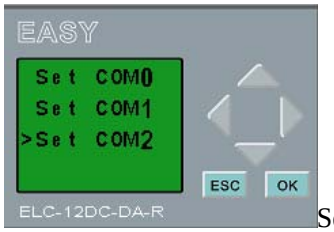
Standard ELC-12 series CPU

click ESC

Select the “Set..” menu , confirm with “OK”



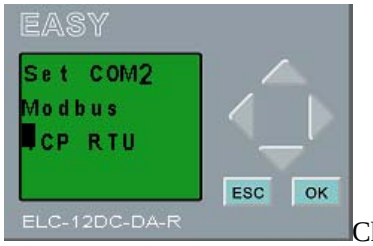
Select the “Set com” menu , confirm with “OK”



Select the “COM2” menu , confirm with “OK”.

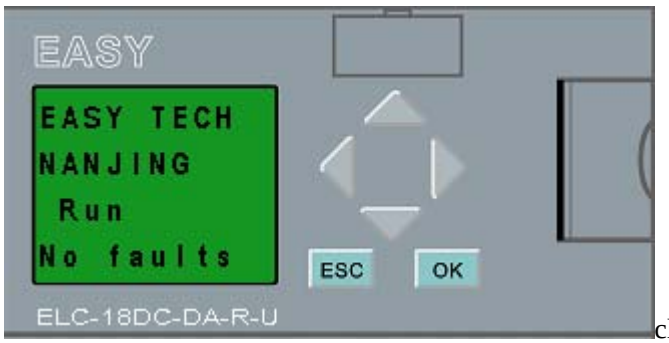
COM2 is for the ELC12-E-Ethernet-DC/AC module.

Select the “Set mode” menu , confirm with “OK”.

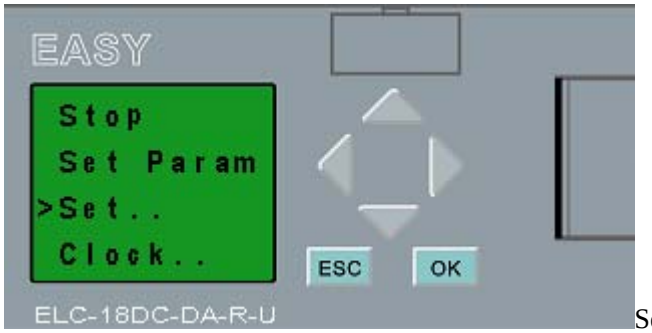


Change to “TCP RTU”, confirm with “OK”. This the MODBUS TCP protocol.

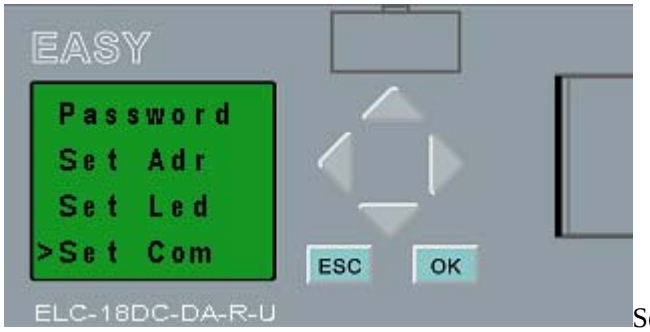
Upgraded ELC-18 series CPU



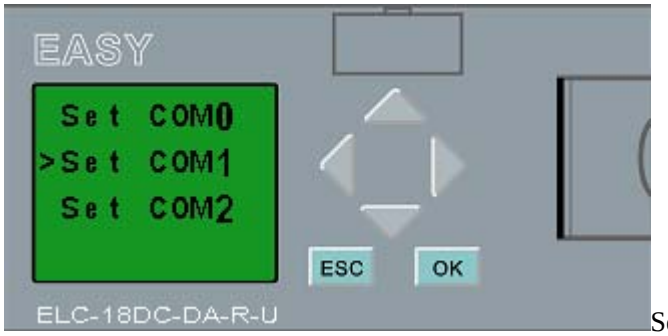
click ESC



Select the “Set..” menu , confirm with “OK”

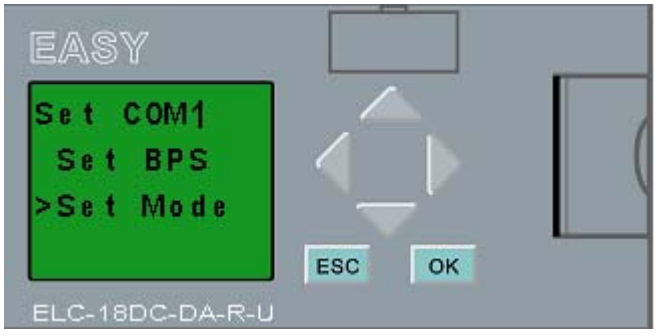


Select the “Set com” menu , confirm with “OK”

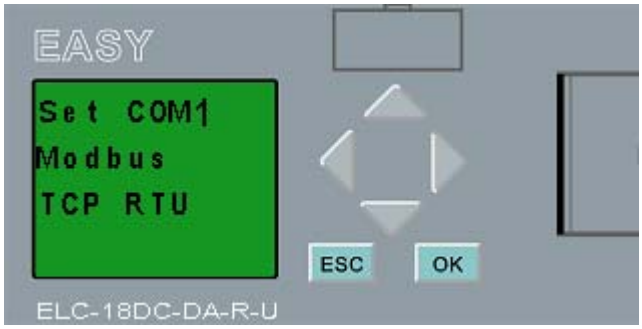


Select the “COM1” menu , confirm with “OK”.

COM1 is for the ELC-E-Ethernet-DC/AC module.



Select the “Set mode” menu , confirm with “OK”.



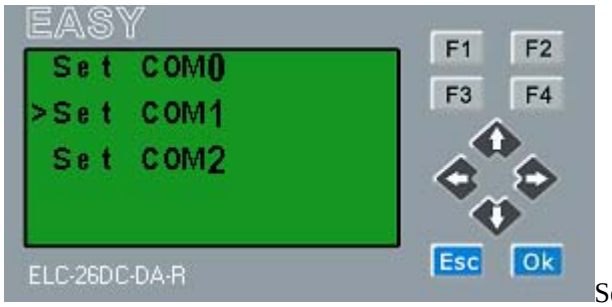
Change to “TCP RTU”, confirm with “OK”. This the MODBUS TCP protocol.

ELC-22/26 series CPU

click ESC

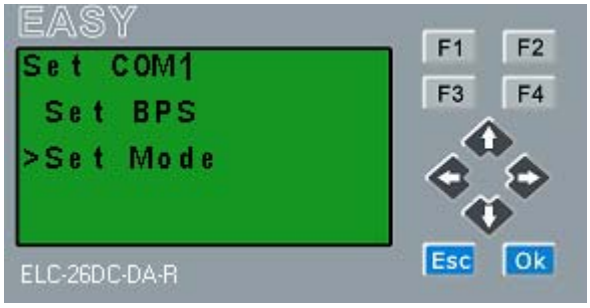
Select the “Set..” menu , confirm with “OK”

Select the “Set com” menu , confirm with “OK”



Select the “COM1” menu , confirm with “OK”.

COM1 is for the ELC-E-Ethernet-DC/AC module.

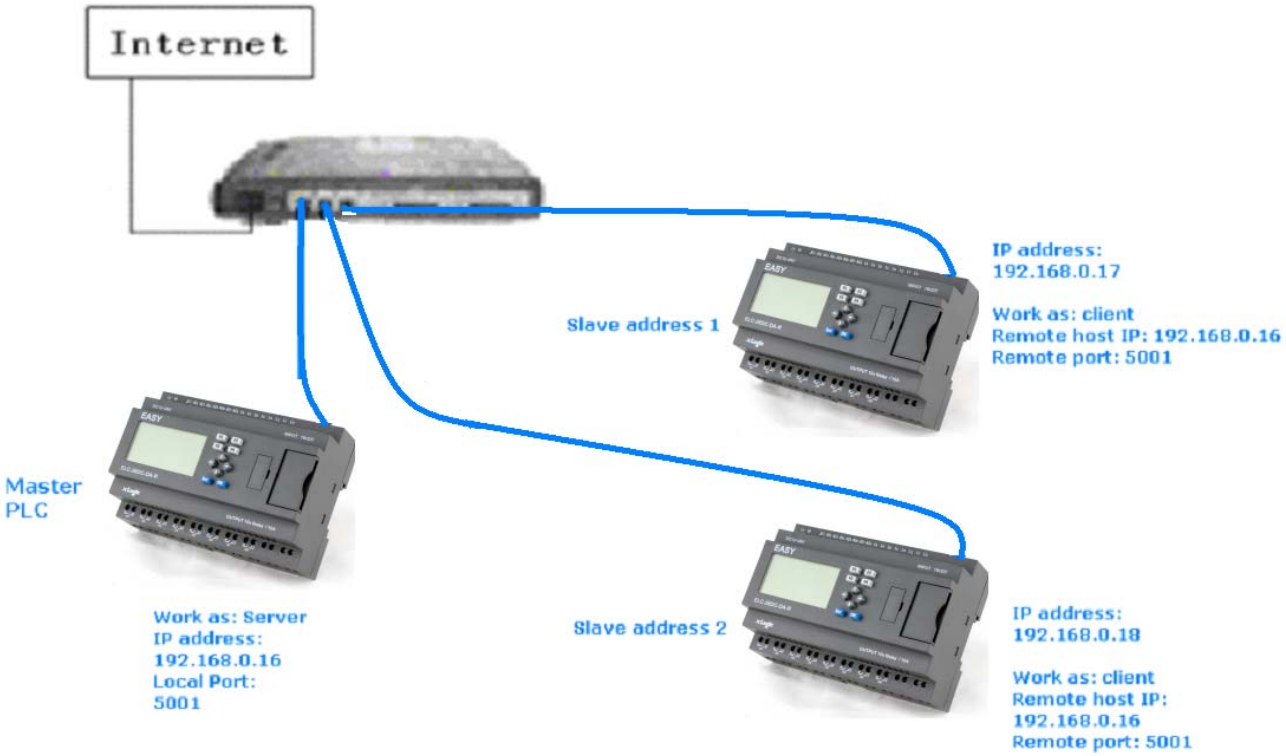


Select the “Set mode” menu , confirm with “OK”.

Change to “TCP RTU”, confirm with “OK”. This the MODBUS TCP protocol.

Now we take an example for description how to establish the communication between ELC-26 CPUs via Ethernet ?

Each CPU need connect with one Ethernet module first.



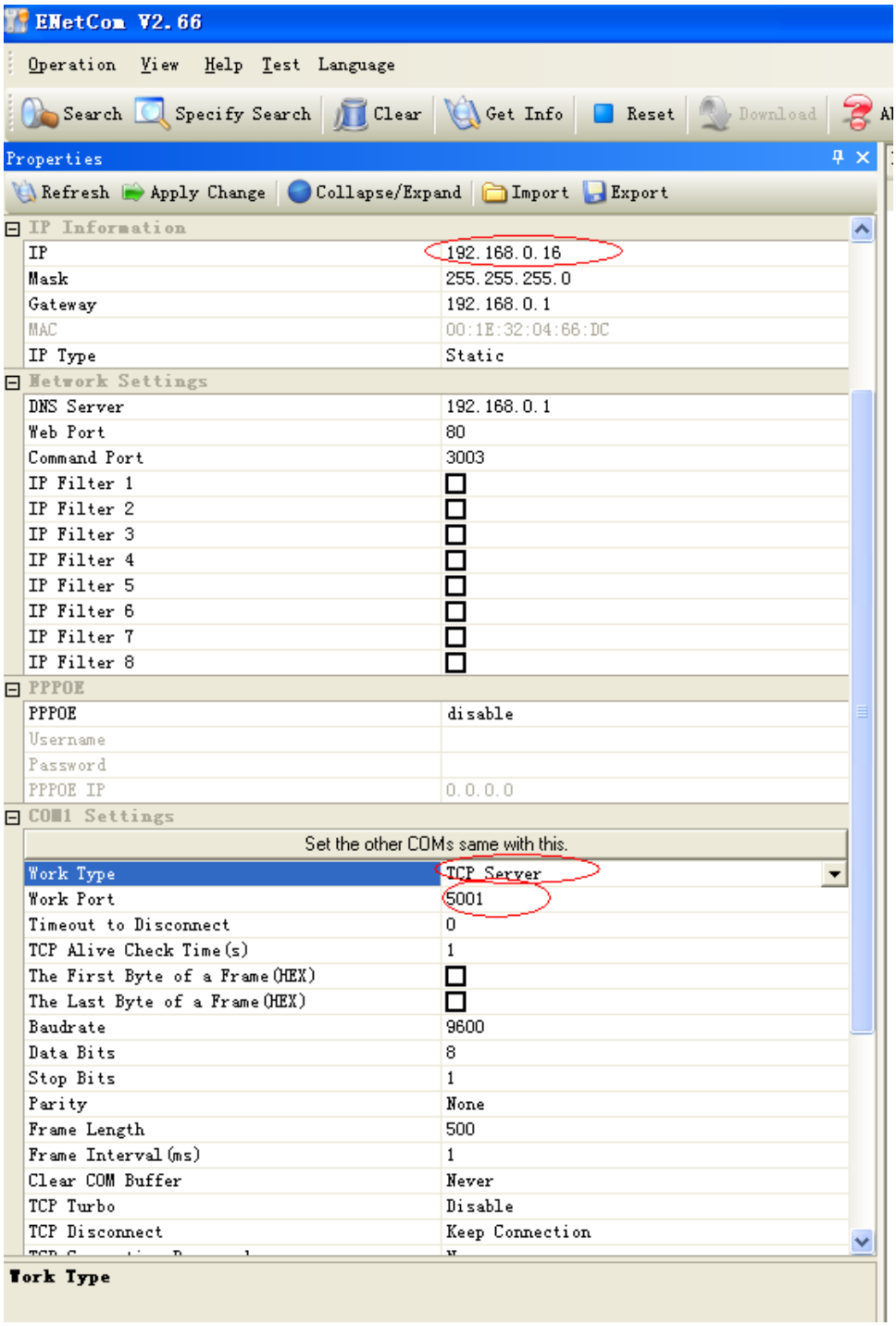
Step A.

First you need use the Ethernet configuration software to configure each Ethernet module.

Example:

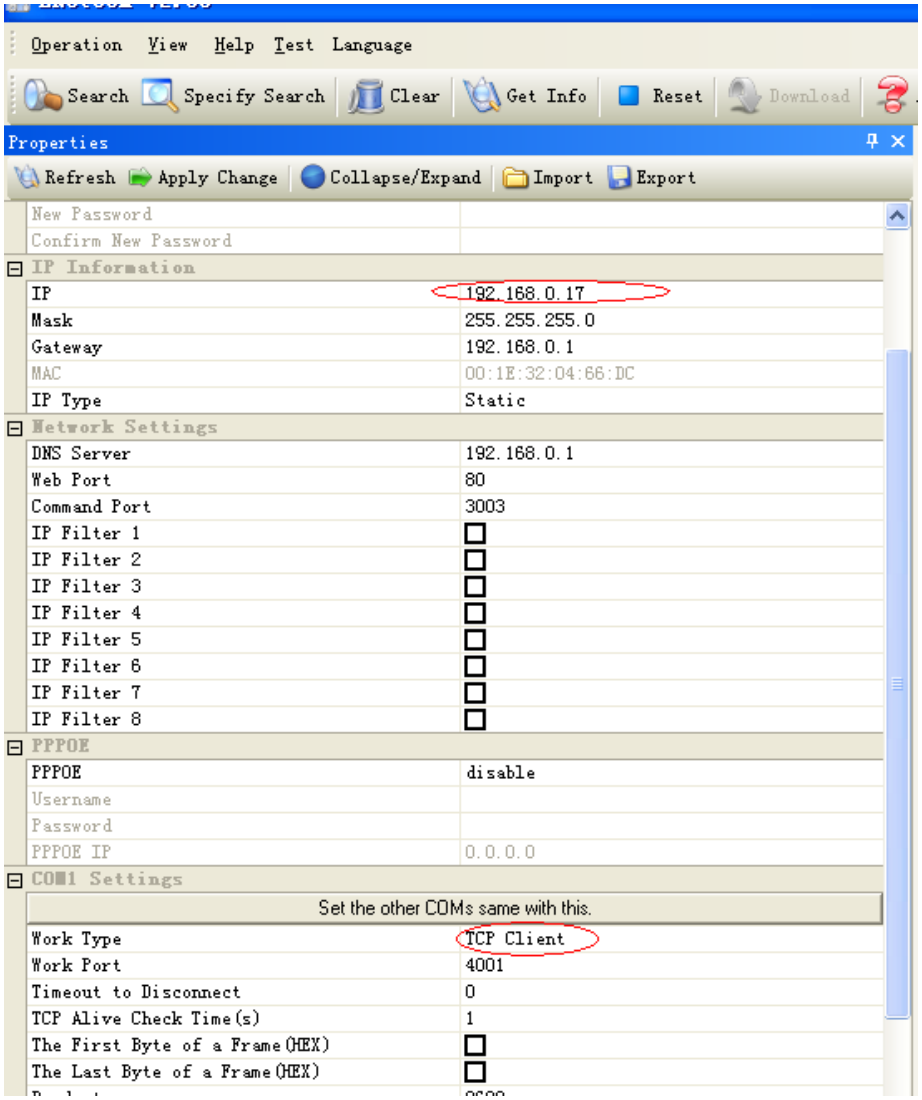
Master PLC works as server. Its IP address is 192.168.0.16 and the local port shall be set as 5001.

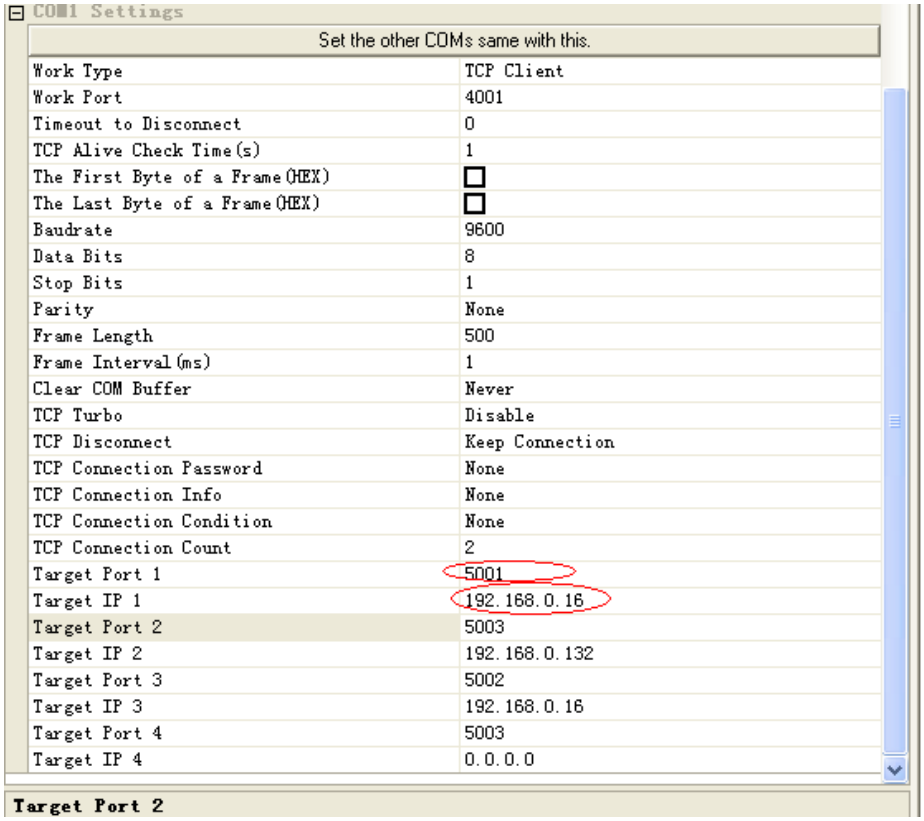
As below configure shows :



Slave 1 settings:

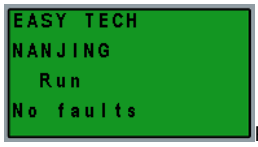
IP address is 192.168.0.17

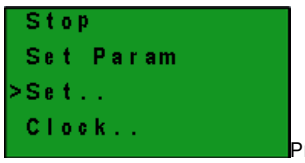

Operation View Help Test Language
Search
Specify Search
Clear
Get Info
Reset
Download
Properties
Refresh
Apply Change
Collapse/Expand
Import
Export
New Password
Confirm New Password
IP Information
IP 192.168.0.17
Mask 255.255.255.0
Gateway 192.168.0.1
MAC 00:1E:32:04:66:DC
IP Type Static
Network Settings
DNS Server 192.168.0.1
Web Port 80
Command Port 3003
IP Filter 1
IP Filter 2
IP Filter 3
IP Filter 4
IP Filter 5
IP Filter 6
IP Filter 7
IP Filter 8
PPPOE
PPPOE disable
Username
Password
PPPOE IP 0.0.0.0
COM1 Settings
Set the other COMs same with this.
Work Type TCP Client
Work Port 4001
Timeout to Disconnect 0
TCP Alive Check Time(s) 1
The First Byte of a Frame(HEX)
The Last Byte of a Frame(HEX)



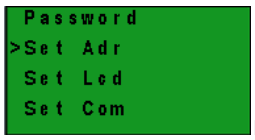
The items with red circle marked must be the same as the above figure.

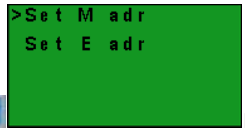
PLC address need be changed to 1 (default is 1). Change the CPU address with the panel key

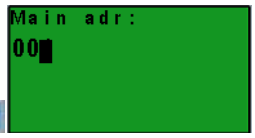


Press Esc ,and then press 

Press Ok



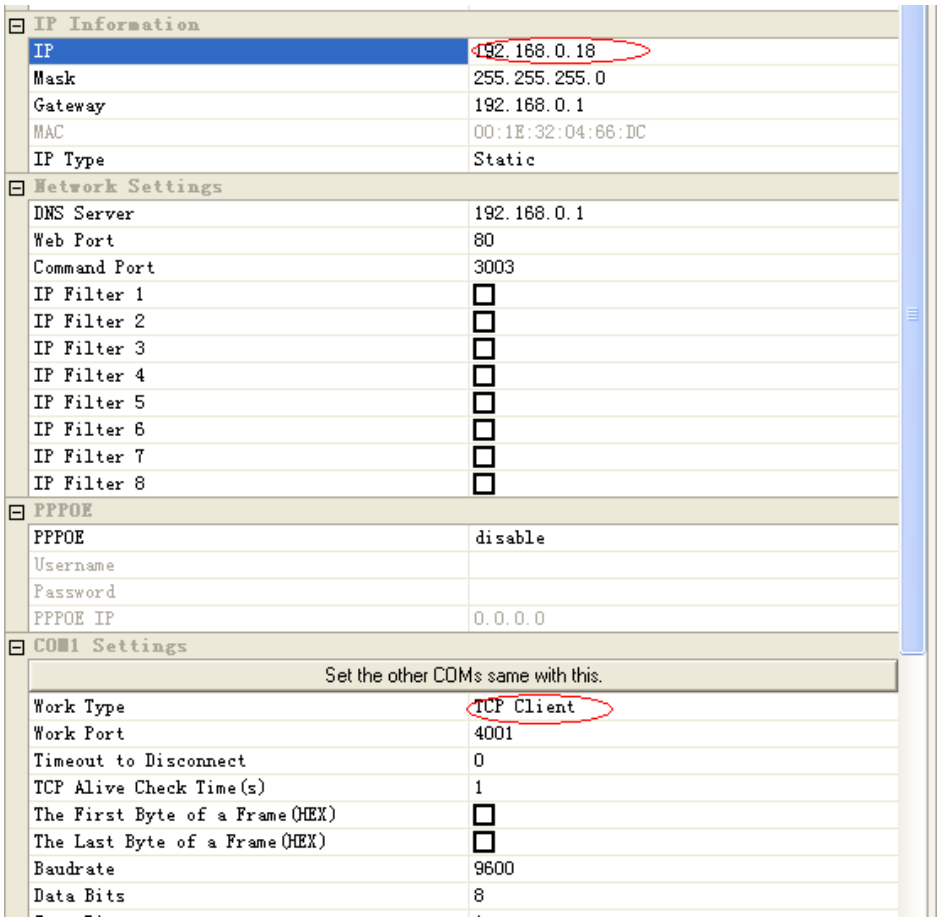
Press Ok 

Press Ok 

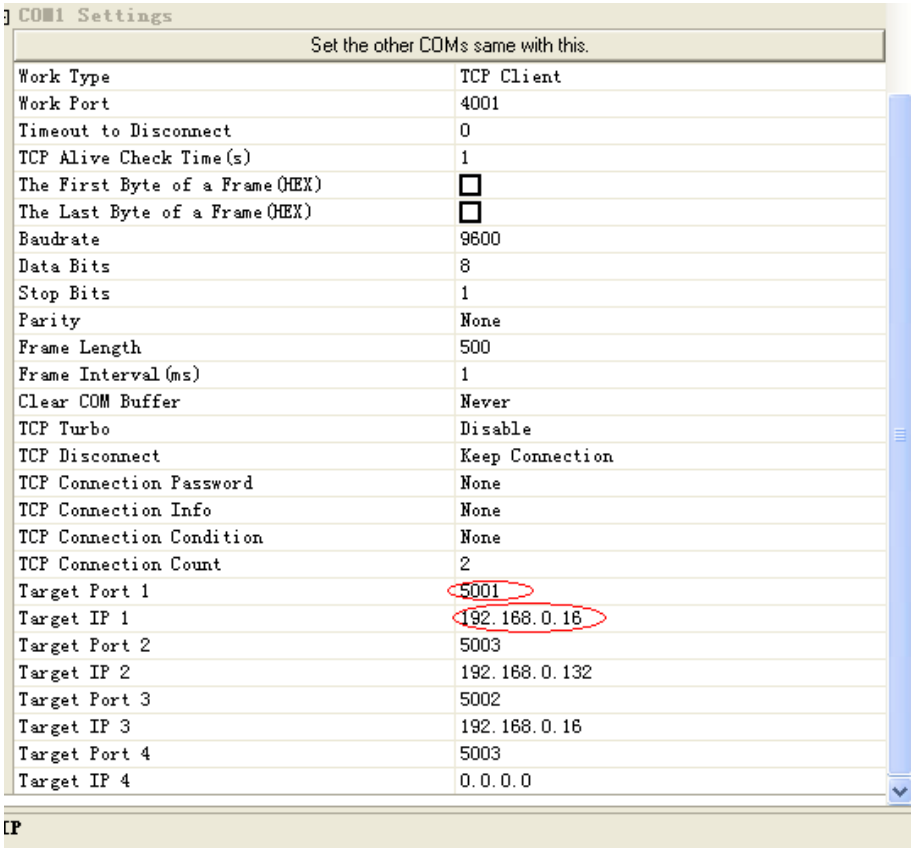
Change address with UP or DOWN button and confirm with OK.

Slave 2 settings:

IP address is 192.168.0.18

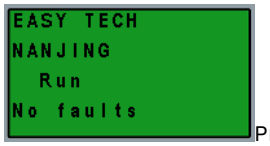


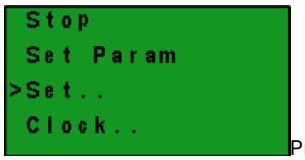
IP Information	
IP	192.168.0.18
Mask	255.255.255.0
Gateway	192.168.0.1
MAC	00:1E:32:04:66:DC
IP Type	Static
Network Settings	
DNS Server	192.168.0.1
Web Port	80
Command Port	3003
IP Filter 1	☐
IP Filter 2	☐
IP Filter 3	☐
IP Filter 4	☐
IP Filter 5	☐
IP Filter 6	☐
IP Filter 7	☐
IP Filter 8	☐
PPPOE	
PPPOE	disable
Username	
Password	
PPPOE IP	0.0.0.0
COM1 Settings	
Set the other COMs same with this.	
Work Type	TCP Client
Work Port	4001
Timeout to Disconnect	0
TCP Alive Check Time(s)	1
The First Byte of a Frame(HEX)	☐
The Last Byte of a Frame(HEX)	☐
Baudrate	9600
Data Bits	8



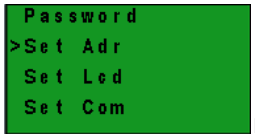
COM1 Settings	
Set the other COMs same with this.	
Work Type	TCP Client
Work Port	4001
Timeout to Disconnect	0
TCP Alive Check Time(s)	1
The First Byte of a Frame(HEX)	☐
The Last Byte of a Frame(HEX)	☐
Baudrate	9600
Data Bits	8
Stop Bits	1
Parity	None
Frame Length	500
Frame Interval(ms)	1
Clear COM Buffer	Never
TCP Turbo	Disable
TCP Disconnect	Keep Connection
TCP Connection Password	None
TCP Connection Info	None
TCP Connection Condition	None
TCP Connection Count	2
Target Port 1	5001
Target IP 1	192.168.0.16
Target Port 2	5003
Target IP 2	192.168.0.132
Target Port 3	5002
Target IP 3	192.168.0.16
Target Port 4	5003
Target IP 4	0.0.0.0

PLC address need be changed to 2 (default is 1). Change the CPU address with the panel key

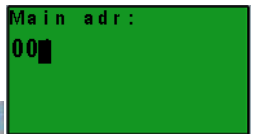


Press Esc ,and then press 

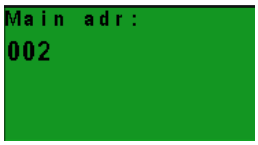
Press Ok



Press Ok

Press Ok 

Change address with UP or DOWN button and confirm with OK.



Regarding the program. We need realize the below logic.

1.I1--IA in master to control the Q1--QA in slave1&salve2, if I1 is ON in master, the corresponding Q1 in salves is ON; I2 is ON in master, the corresponding Q2 in salves is ON;....IA is On in master, the corresponding QA in salves is ON. If I1 is OFF in master, the corresponding Q1 in salves is OFF.....IA is OFF in master, the corresponding QA in salves is OFF.

2. Read the Inputs I1--IA status of slave 1 to control the F11--F20 in master; Read the Inputs I1--IA status of slave 2 to control the F21--F30.

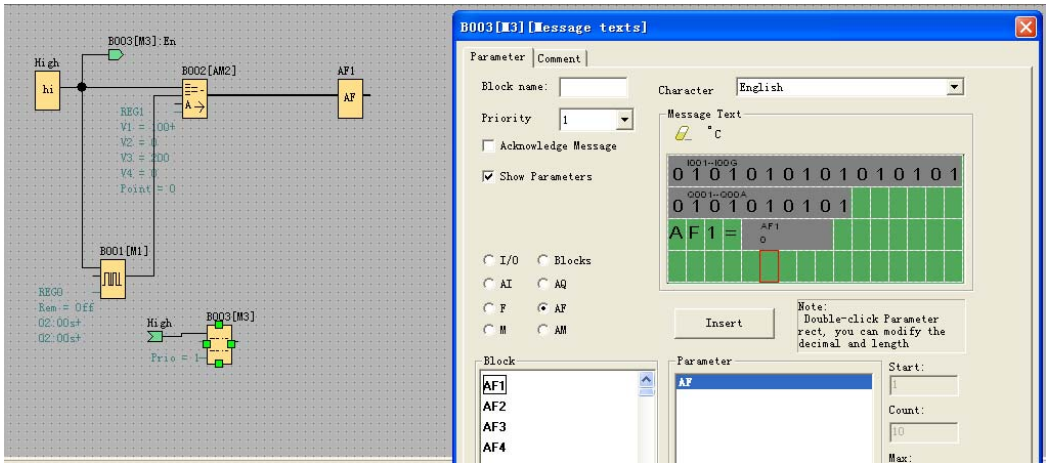
3. Read the AF1 value of slave1 to be saved in the AF1 of master; Read AF1 value of slave2 to be saved in AF2 of master.

Program in slave 1

(Note: In the program, you can put the input/output block in, but you cannot link the input pin of the output)

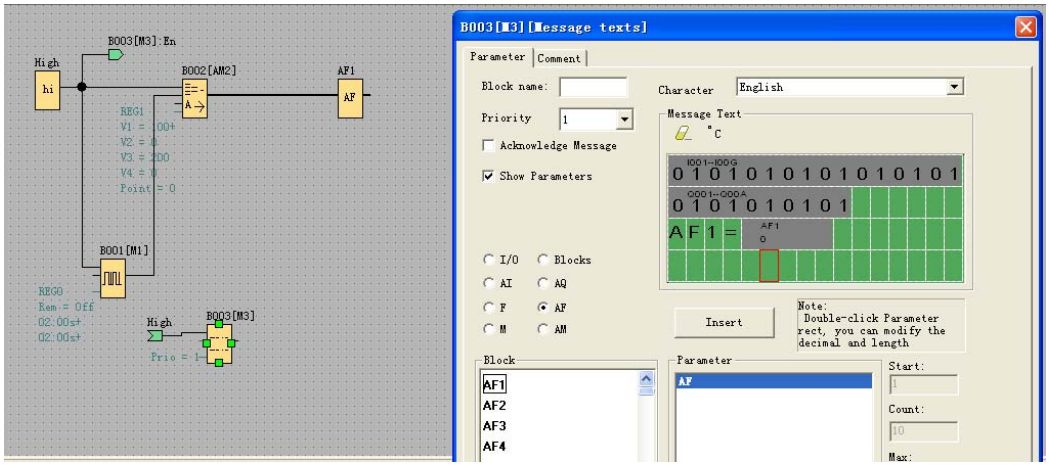
Program in slave 1

(Note: In the program, you can put the input/output block in, but you cannot link the input pin of the output)



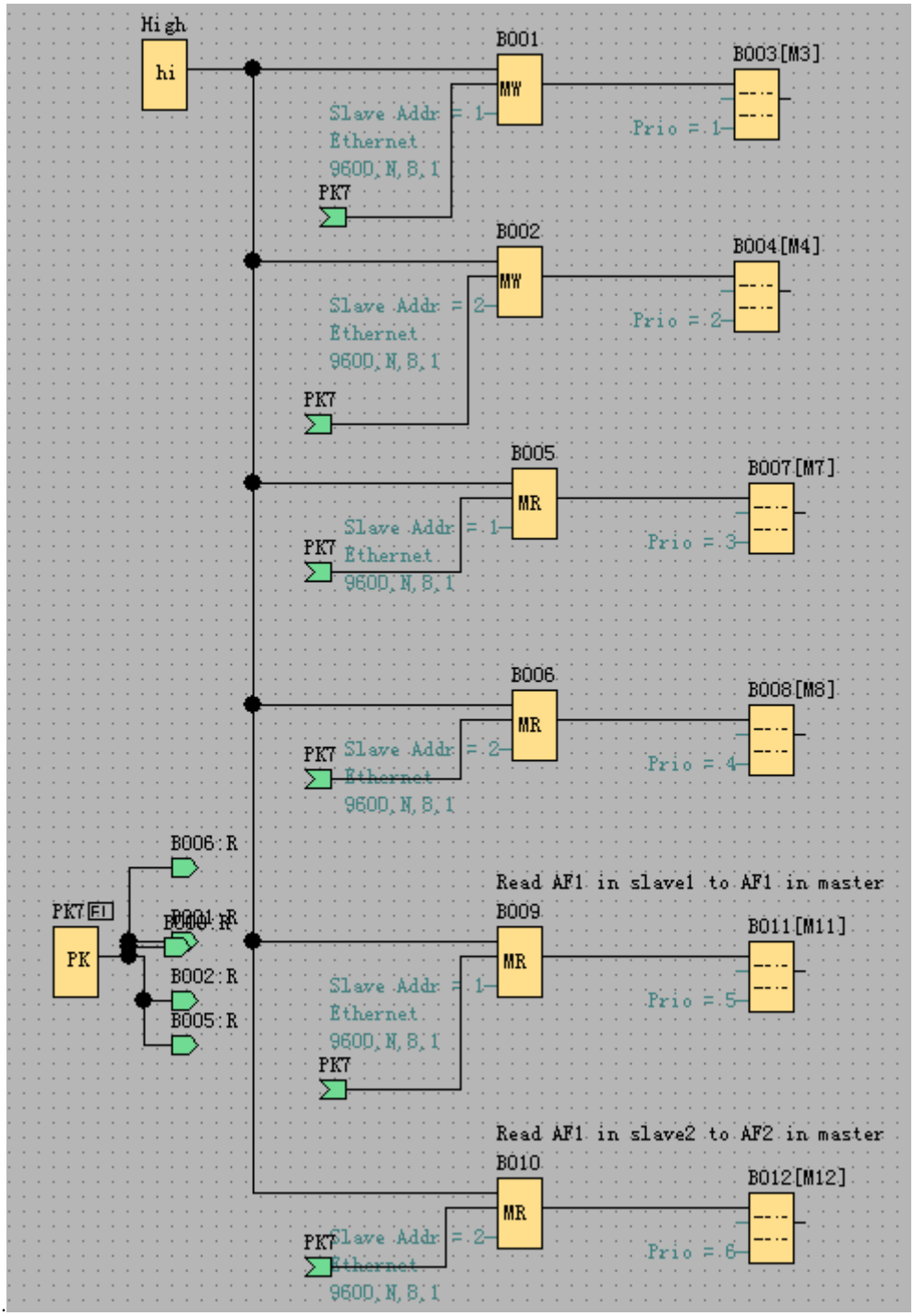
Program in slave 2

(Note: In the program, you can put the input/output block in, but you cannot link the input pin of the output)



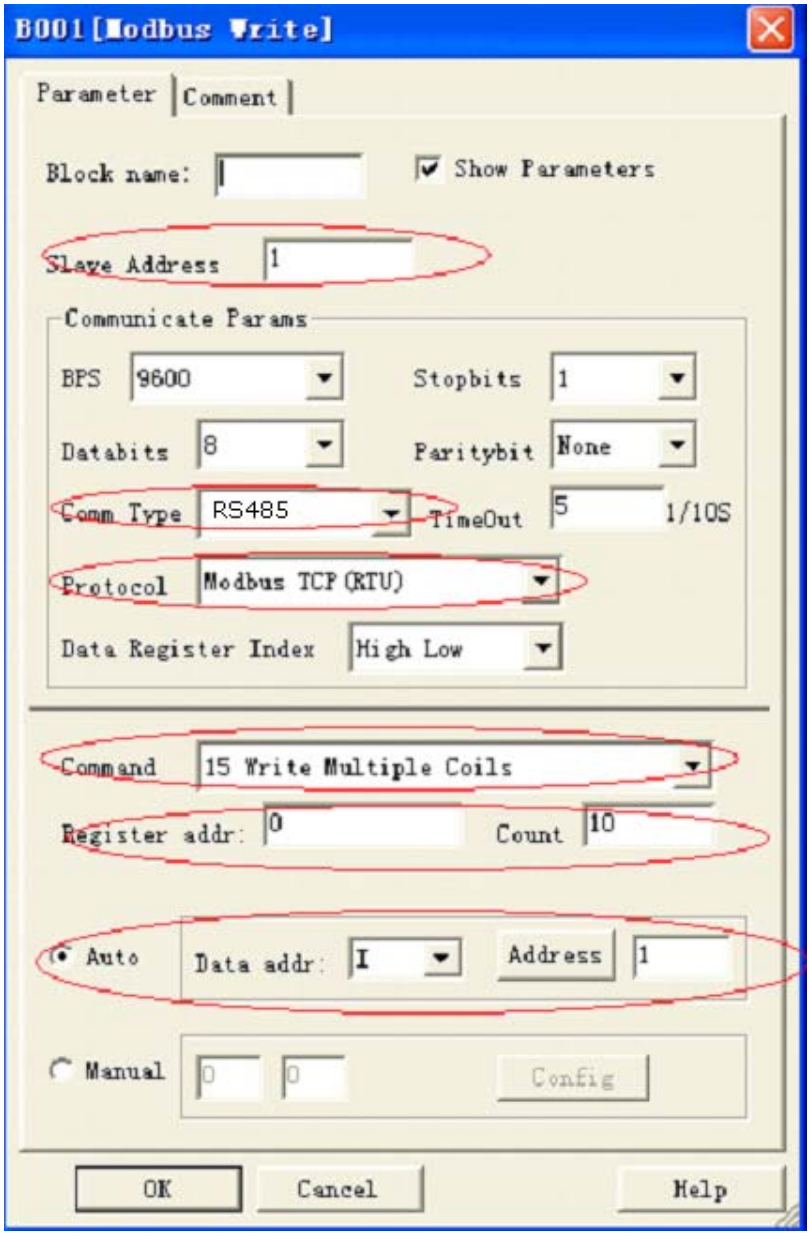
Program in master

You need use the MODBUS BLOCK to realize the data transmission between master and

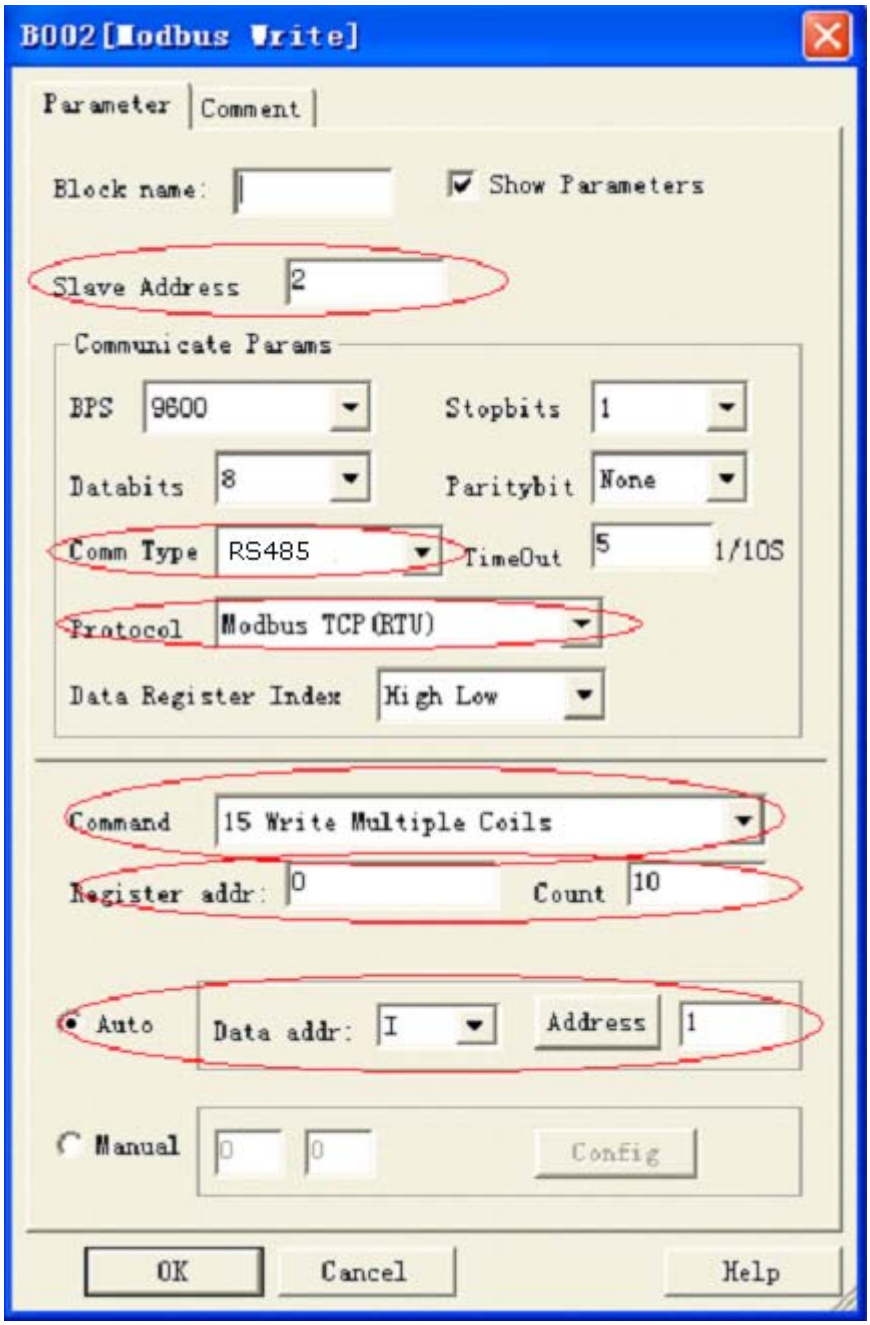


slaves.

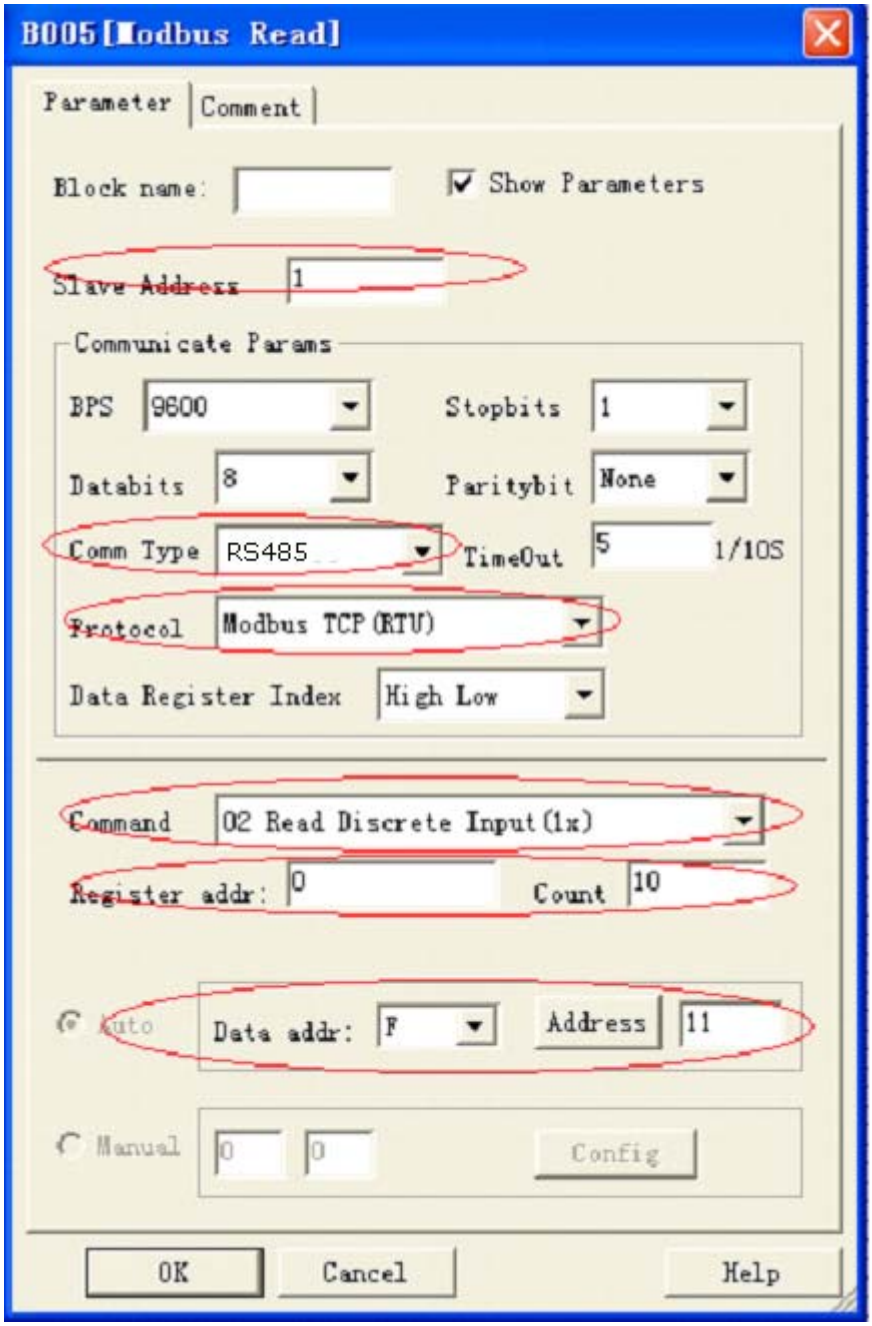
B001: Transfer the I1--IA status from the master to the Q1-QA of the slave1. Setting as follows:



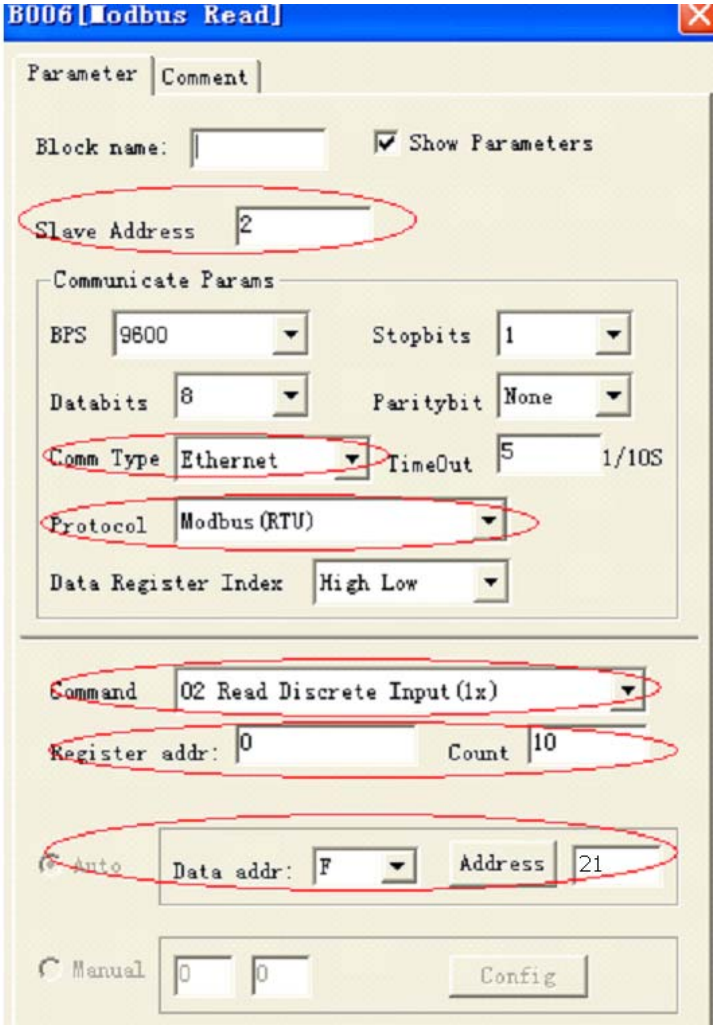
B002: Transfer the I1--IA status from the master to the Q1-QA of the slave2. Setting as follows:



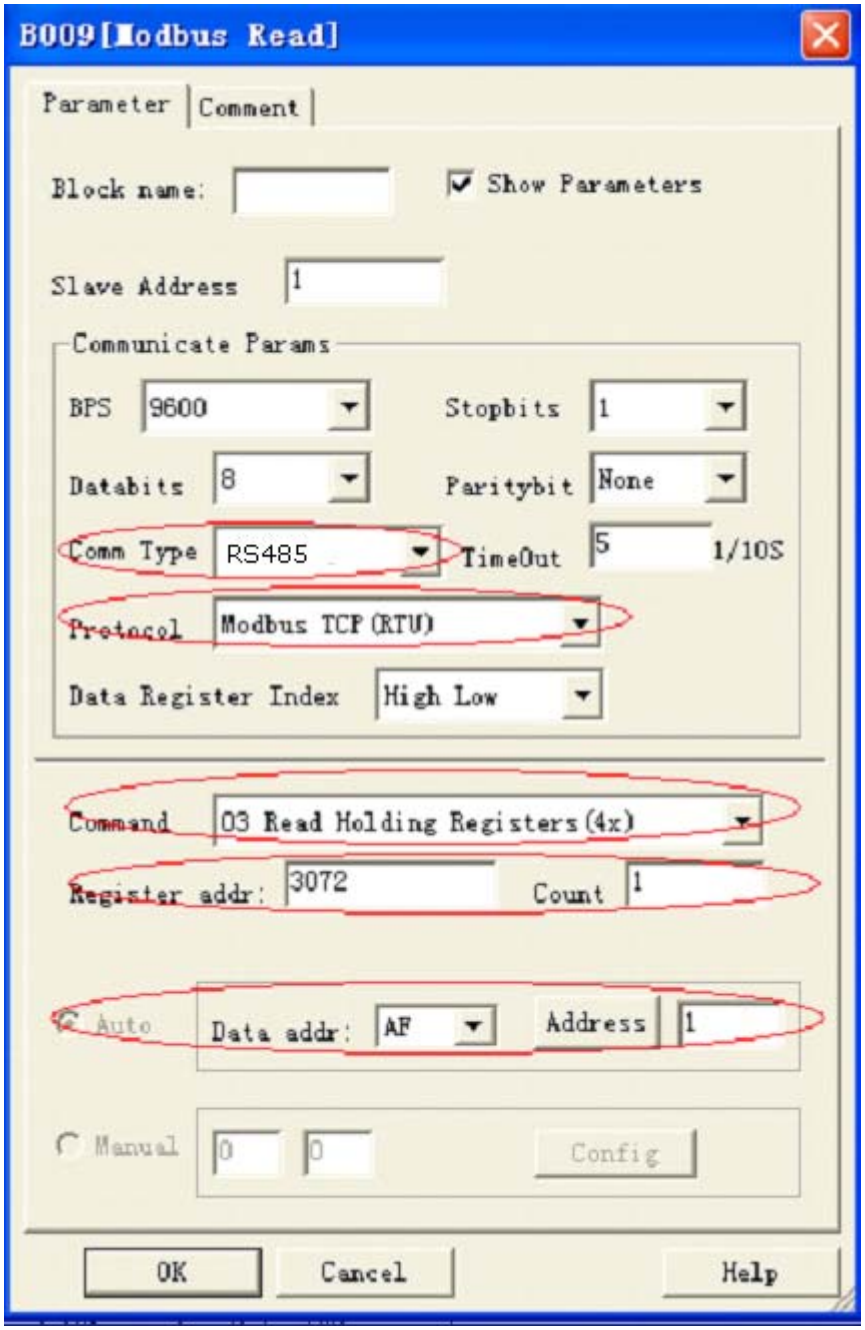
B005: Read the I1--IA status from the slave1 to the F11-F20 of the master. Setting as follows:



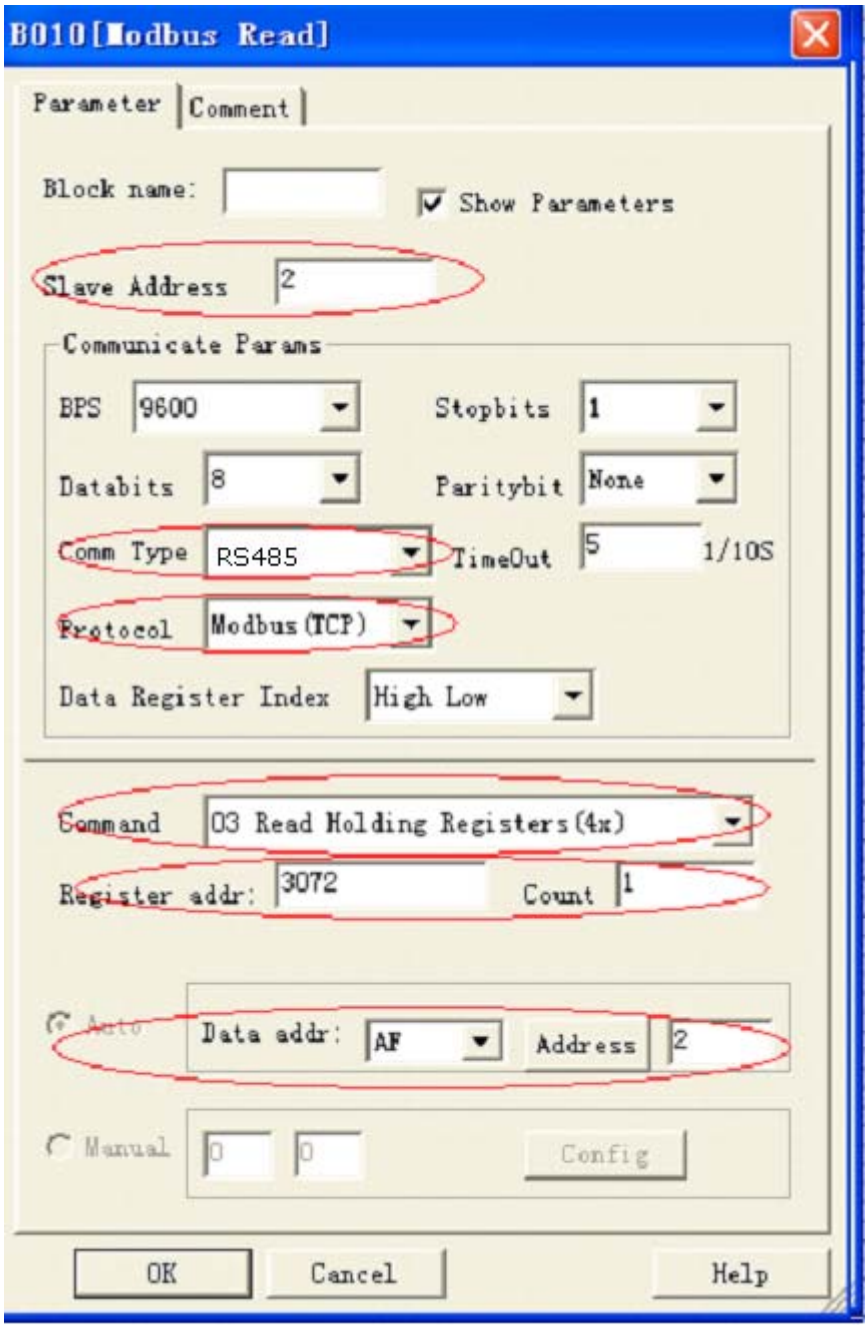
B006: Read the I1--IA status from the slave2 to the F21-F30 of the master. Setting as follows:



B009: Read the AF1 value from the slave1 to the AF1 of the master. Setting as follows:



B010: Read the AF1 value from the slave2 to the AF2 of the master. Setting as follows:



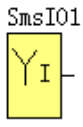
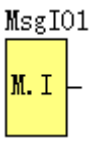
Notes:

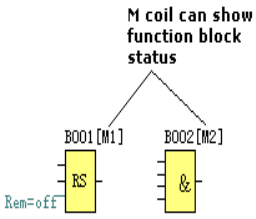
1. When you do not use the MODBUS blocks in your program, then ELC-26DC-DA-R-HMI CPU shall work as slave, in this case, you can use the SCADA or touch screen to communicate with ELC-26DC-DA-R-HMI via the Ethernet module. However, if MODBUS BLOCKS had been used in your program, moreover, the communication type (comm Type) is Ethernet, then ELC-26DC-DA-R-HMI can not work as slave through Ethernet module.

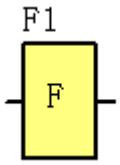
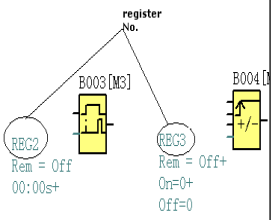
2. In your program, if the Modbus read/write blocks would be used, then you can use the ELC-26DC-DA-R-HMI as the master CPU to communicate with the slave (i.e. xlogic or the devices from other supplier which supports the standard MODBUS TCP communication protocol.) in Modbus network.

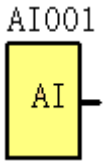
3. If you use other devices(for example ,Touch screen or SCADA) from other suppliers which supports the MODBUS TCP protocol to communicate with our xlogic CPU via Ethernet module. you first need configure the Ethernet module's "work type" to be client or server , and other parameters shall be configured according to above instruction chapter. and then configurate the registers which you want to read or set in the related software from the device supplier. You only need

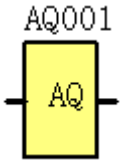
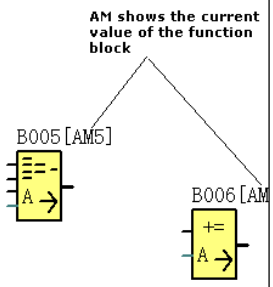
know the kinds of the registers addresses and the corresponding MODBUS command of xLogic. So we list the Kinds of register address table at below:

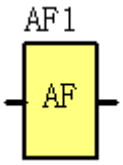
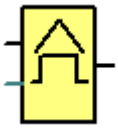
Name	Code	Set address method (DECIMAL)	Data format	Attribute
Digital quantity input switch Block in xlogicsoft: Type: (1x)	ELC-6(CPU): ELC-18(CPU)： ELC-E-16(EXT1)： ELC-E-16(EXT2)： ELC-E-16(EXT3) . . . EXM-12/ ELC-12(CPU)： ELC12-E-8(EXT1) ELC12-E-8(EXT2) ELC12-E-8(EXT3) ELC-22/26(CPU) ELC-E-16(EXT1) ELC-E-16(EXT2) ELC-E-16(EXT3)	0~3 0～11 12～19 20～27 28～35 . . . 0～7 8～15 16～23 24～31 0~16 17~24 25~32 33~40	BIT	R
4 cursors （Cursor key） (1x)	C	256~259	BIT	R
Sms Input  (1x)	ELC-SMS-D-R (SmsI1-SmsI6)	260~265	BIT	R
Sms Message Input  (1x)	ELC-SMS-D-R (MsgI1-MsgI10)	266~275	BIT	R

Coils outputs (0x)	ELC-6(CPU): ELC-18(CPU)： ELC-E-16(EXT1)： ELC-E-16(EXT2)： ELC-E-16(EXT3)： . . . EXM-12/ELC-12(CPU) ： ELC12-E-8(EXT1) ELC12-E-8(EXT2) ELC12-E-8(EXT3) ELC-22/26(CPU) ELC-E-16(EXT1) ELC-E-16(EXT2) ELC-E-16(EXT3) SMS Output SMS Message Output	0~1 0～5 8～15 16～23 24～31 . . . 0～7 8～15 16～23 24～31 0~9 10~17 18~25 26~33 512～515 516～525	BIT	R/W
Middle coil (0x)  (0x)	M	ELC-6&Economic ELC-12 Series: 256~319 Standard EXM-12/ ELC-12 Series： 256~767 Standard/ economic ELC-18 Series: 256~511 Upgraded ELC-18 Series: 256~767 ELC-22/26 256~767	BIT	R

F outputs  (0x)	F	ELC-6&Economic ELC-12 Series: 1536~1567 EXM-12/Standard ELC-12 ： 1536~1599 ELC-18 Series: 768~799 Upgraded ELC-18 Series: 1536~1599 ELC-22/26 1536~1599	BIT	R/W
Holding register(timer、counter value) (4x)  (4x)	REG	ELC-6&EconomicE LC-12 Series: 0~63 EXM-12/ ELC-12 Series： 0~511 ELC-18 Series: 0～255 Upgraded ELC-18 Series: 0~511 ELC-22/26 0~511	LONG	R

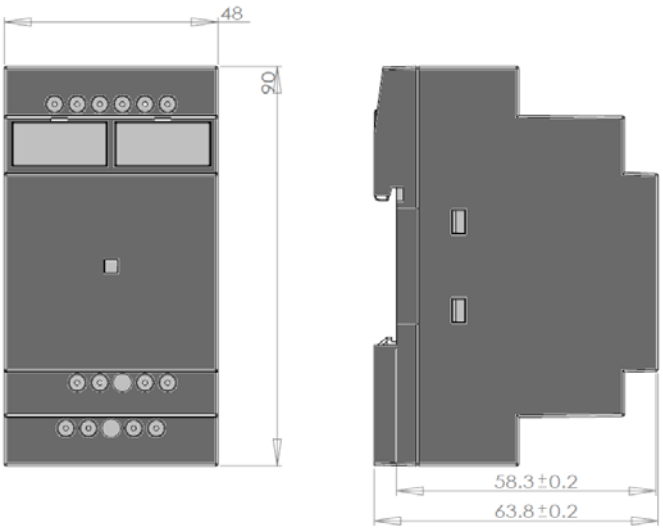
Analog quantity input register  (4x)	AI	EXM-12/ ELC-12 Series： (1024~1279) CPU:1024~ 1031 EXT1:1032~ 1039 EXT2:1040~ 1047 …… ELC-18 Series: (256~511) CPU:256~263 EXT1:264~ 271 EXT2:272~ 279 ….. Upgraded ELC-18 Series: CPU:1024~ 1031 EXT1:1032~ 1039 EXT2:1040~ 1047 ELC-22/26 (CPU) :1024~ 1031 EXT1:1032~ 1039 EXT2:1040~ 1047	Signed short	R

Analog quantity output buffer  (4x)	AQ	EXM-12/ ELC-12 Series： (1280~1535) CPU:1280~1281 EXT1:1282~1283 EXT2:1284~1285 ELC-18 Series： (512~531) CPU:512~513 EXT1:514~515 EXT2:516~517 ELC-22/26/Upgraded ELC-18 Series: CPU:1280~1281 EXT1:1282~1283 EXT2:1284~1285	Signed short	R/W
Analog quantity buffer  (4x)	AM	ELC-6&EconomicELC-12 Series: 1536~1599 EXM-12/ ELC-12 Series： 1536~2074 ELC-18 Series： 768~1023 ELC-22/26/Upgraded ELC-18 Series: 1536~2074	Signed short	R

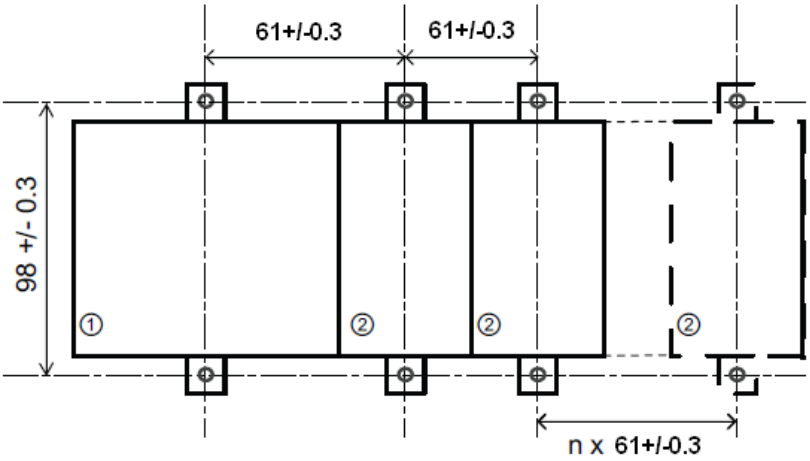
Analog quantity buffer  (4x)	AF	ELC-6&Economic ELC-12 Series: 3072~3103 ELC-12 Series： 3072~3135 ELC-18 Series： 1280~1311 Upgraded ELC-18 Series: 3072~3135	Signed short	R/W
The frequency value buffer of threshold trigger  (4x)	REG	EXM-12/ELC-12 Series： 2560~3071 ELC-18 Series： 1024~1279	Word	R

Dimension:

ELC12-E-Ethernet-DC/AC is only for Standard ELC-12 CPUs



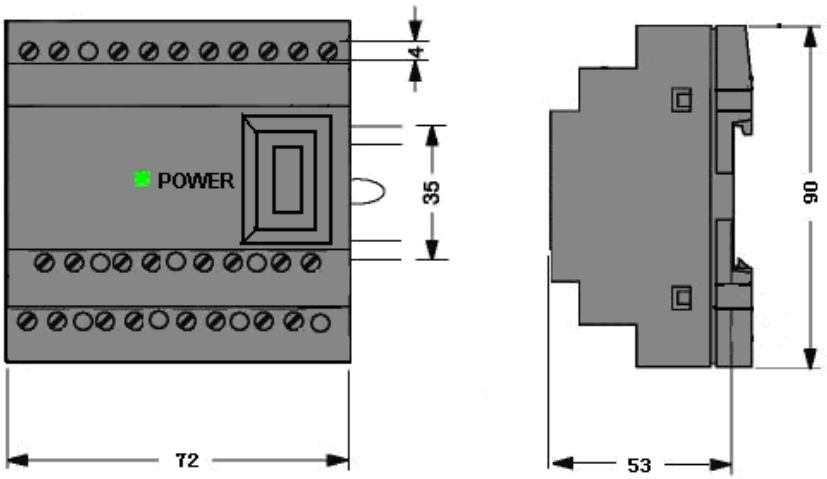
Mounting Hole Layout

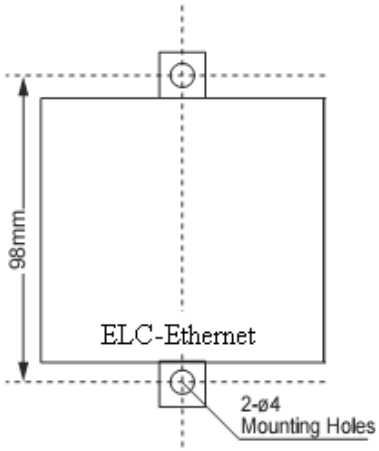


1. ELC-12 CPU
2. ELC12-E-ETHERNET

Model	**ELC12-E-Ethernet-DC**	**ELC12-E-Ethernet-AC**
Supply Voltage	DC 12-24V	AC 110-240V

ELC-E-Ethernet-DC/AC is for ELC-18/22/26 CPUs.





Model	ELC-E-Ethernet-DC	ELC-E-Ethernet-AC
Supply Voltage	DC 12-24V	AC 110-240V